### ECONOMICS 8200-001 TOPICS IN ADVANCED (INTERNATIONAL) MACROECONOMICS *FINANCIAL GLOBALIZATION: WHAT HAVE WE LEARNED?* MONDAYS, 1:45-4:45PM, ROOM 202 PCPE

The main goal of the course is to examine the positive and normative implications of the process of global financial integration that started in the 1990s through the lens of quantitative dynamic macroeconomic models. The course blends elements of International Finance, Asset Pricing Theory and Recursive Macroeconomic Theory. A thorough understanding of first-year Ph.D. Macro and Micro material, particularly stochastic dynamic programming, general equilibrium analysis, and Bewley models of heterogeneous agents is critical. Knowledge of computational methods used in Macro modeling is also useful, particularly global methods for solving nonlinear models and models with incomplete markets. Familiarity with principles of International Macro is helpful but not required.

The course starts with a review of two workhorse models of the benefits of financial openness (a perfect-foresight and an RBC model of a small open economy), and an analysis of the tradeoffs involved in solving open-economy models with incomplete markets using local v. global methods. The course explores then models of financial crises and sudden reversals of capital inflows, or Sudden Stops, in economies that are fully integrated to world financial markets. We also study optimal policies to tackle inefficiencies present in Sudden Stop models with credit constraints linked to market prices and models in which financial innovation interacts with Bayesian learning to produce credit booms and busts. Next, we cover topics related to public debt and fiscal policy, focusing on sovereign default, public debt sustainability, international spillovers of tax policies and global tax competition. The last part of the course focuses on heterogeneous agents' models. These models yield key new insights on issues like international disparities resulting from financial globalization, the effects of financial repression and capital controls, default on domestic public debt, and financial contagion.

**Grading**: The course is graded with a final exam (40%), a term paper (35%), and two components of inclass participation (25%), which include (i) a presentation of the work related to the term paper, (ii) and class attendance/participation. The term paper is required, without it the final grade defaults to a D.

**Term paper**: The paper <u>must</u> be original research on an open-economy macro topic and <u>must</u> apply numerical methods. The paper may be a straightforward extension of an existing model applied to an already known question, may propose a completely new model and/or a new question, or somewhere in between, with the understanding that more original work will carry a premium. A two-page (maximum) proposal must be submitted for approval no later than <u>March 1st, 2023</u>. Presentations of term papers will take place at dates to be determined near the end of the term. These presentations should include a discussion of the paper's motivation and its contributions, the model itself and its analytic properties, and the preliminary quantitative findings. <u>The final draft must not exceed 20 double-spaced pages in a 12-point font and 1.5-inch margins (no exceptions)</u>. The papers' due date will be extended beyond the end of the term. Papers are due on <u>June 16<sup>th</sup>, 2023</u>. Following department guidelines, initial course grades will be posted as B- in lieu of "incomplete," but this B- should be interpreted as identical to an "incomplete," and not conveying information about the final grade. Final grades will be issued after the papers are graded.

### **Reading List**

### **Reference Texts:**

- SL Ljungqvist, L. & Sargent, T. J., *Recursive Macroeconomic Theory*, MIT Press, 2012.
- CV Végh, C.A. Open Economy Macroeconomics in Developing Countries, MIT Press, 2013
- US Uribe, M. and Schmitt-Grohe, S. Open Economy Macroeconomics, Princeton Univ. Press, 2017
- **OR** Obstfeld, M. & Rogoff, K. Foundations of Intnl. Macroeconomics, MIT Press 1996.
- **RR** Reinhart, C. M. & Rogoff, K., *This Time is Different: Eight Centuries of Fin. Folly*, Princeton U. Press.

### I.- Workhorse Models & Solution Methods

Backus, D. "Interpreting Comovements in the Trade Balance and the Terms of Trade," *J. of Intn'l Econ.*, 1993. de Groot, O., C.B Durdu, and E. G. Mendoza, 2020, "Approximately Right?: Global v. Local Methods for Open-Economy Models with Incomplete Markets," NBER Working Paper WP26426, https://www.sas.upenn.edu/~egme/wp/w26426.pdf.

Mendoza, E. G., "The Terms of Trade, the Real Exchange Rate and Economic Fluctuations," *International Economic Review*, 1995. <u>http://www.sas.upenn.edu/~egme/pp/IER95.pdf</u>

Mendoza, E. G., and S. Villalvazo, "FiPIt: A Simple, Fast Global Method for Solving Models with Two Endogenous States & Occasionally Binding Constraints," *Review of Economic Dynamics*, 2020, available at https://www.sas.upenn.edu/~egme/pp/MendozaVillRED.pdf

*Users guide*: <u>https://www.sas.upenn.edu/~egme/econ712/files/FPI\_Appendix\_v6.pdf</u> *Matlab codes*: <u>https://www.sas.upenn.edu/~egme/econ712/files/MendozaVillalvazoFiPItCode.zip</u>

Reference: SL chs. 8, 16, 17 (2<sup>nd</sup> edition) CV Chs. 1, 3, 4 US Chs. 1-8 OR 1.1, 1.2, 1.3, 2.1, 2.2, and ch. 5

# II.- Financial Crises, Sudden Stops and Macroprudential Policy

Bianchi, J. and E.G. Mendoza, 2018, "Optimal, Time-Consistent Macroprudential Policy," *Journal of Political Economy*, <u>https://www.sas.upenn.edu/~egme/pp/JPE2018.pdf</u>, see also the Appendix included in the working paper version available here <u>http://www.sas.upenn.edu/~egme/wp/w19704.pdf</u>

Bianchi, J. and E.G. Mendoza, 2015, "Phases of Global Liquidity, Fundamentals News, and the Design of Macroprudential Policy," BIS Working Paper No. 505 (<u>http://www.sas.upenn.edu/~egme/wp/work505.pdf</u>). Bianchi, J. and E.G. Mendoza, 2020, "A Fisherian Approach to Financial Crises: Lessons from the Sudden Stops Literature," *Review of Economic Dynamics*, <u>https://www.sas.upenn.edu/~egme/pp/BianMendozaRED.pdf</u> Boz. E. and E.G. Mendoza, 2014, "Financial Innovation, the Discovery of Risk, and the U.S. Credit Crisis," *Journal of Monetary Economics*, (http://www.sas.upenn.edu/~egme/pp/BozMendozaJME.pdf).

Mendoza, E.G. and V. Quadrini, 2023, "Unstable Prosperity: How Globalization Made the World Economy More Volatile," forthcoming as NBER WP w30832.

Mendoza, E.G. and E. Rojas, 2019, "Positive and Normative Implications of Liability Dollarization for Sudden Stops Models of Macroprudential Policy," *IMF Economic Review*,

https://www.sas.upenn.edu/~egme/pp/MendozaRojas.pdf

Mendoza, E.G. and K. Smith, 2006, "Quantitative Implications of a Debt-Deflation Theory of Sudden Stops and Asset Prices," *Journal of International Economics*, 2006. <u>http://www.sas.upenn.edu/~egme/pp/JIE06smith.pdf</u> Mendoza, E.G., 2008, "Sudden Stops, Financial Crises and Leverage," *American Economic Review*, Dec. 2010, <u>http://www.sas.upenn.edu/~egme/pp/CompletePaperRevforDistribution.pdf</u>;

Reference texts: US Ch. 12 CV Ch. 2, 16, 17, RR

### III.- Fiscal Policy, Public Debt Sustainability & Sovereign Default

Arellano, C., "Default Risk and Income Fluctuations in Emerging Economies," *AER*, 2008
D'Erasmo, P., E. Mendoza, and J. Zhang, "What is a Sustainable Public Debt?", 2016, *Handbook of Macroeoconomics*, available at <u>http://www.sas.upenn.edu/~egme/wp/HandbookDraft\_0413.pdf</u>
Eaton, Jonathan, and Mark Gersovitz, "Debt with Potential Repudiation: Theoretical and Empirical Analysis," *Review of Economic Studies*, v. XLVIII, 289-309, 1981.
Mendoza, E., L. Tesar and J. Zhang, "Saving Europe?: The Unpleasant Arithmetic of Fiscal Austerity in Integrated Economies" available at <u>http://www.sas.upenn.edu/~egme/wp/w20200.pdf</u>
Mendoza, E. and Z. V. Yue, 2012 "A General Equilibrium Model of Sovereign Default and Business Cycles," *Ouarterly Journal of Economics*, http://www.sas.upenn.edu/~egme/wp/w13861.pdf

# Reference texts: US Ch. 13, RR, OR. Ch. 6

### IV.- International Macroeconomics with Heterogeneous Agents

Andreasen, E., S. Bauducco, E. Dardati and E. Mendoza, 2023, "Beware the Side Effects: Capital Controls Misallocation and Welfare," mimeo, Universidad de Chile.

D'Erasmo, P. and E. Mendoza, 2021, "History Remembered: Optimal Sovereign Default on Domestic and External Debt," *Journal of Monetary Economics*, also available as NBER WP 25073, https://www.sas.upenn.edu/~egme/wp/w25073.pdf

D'Erasmo, P. and E. Mendoza, 2016, "Distributional Incentives in an Equilibrium Model of Domestic Sovereign Default," *Journal of the Eur. Ec. Assoc*, <u>http://www.sas.upenn.edu/~egme/pp/D%27ErasmoMenozaJEEA.pdf</u> Mendoza, E., V. Quadrini, and J. V. Rios-Rull, 2009, "Financial Integration, Financial Development and Global Imbalances," *Journal of Pol. Econ.*, at <u>http://www.sas.upenn.edu/~egme/pp/JPEreprint.pdf</u>

Mendoza, E., V. Quadrini, and J. V. Rios-Rull, 2007 "On the Welfare Implications of Financial Globalization without Financial Development," *International Seminar on Macroeconomics*, R. Clarida & F. G Giavazzi, eds. available at: http://www.sas.upenn.edu/~egme/pp/Welfarefinancialintegration.pdf

Mendoza, E. and V. Quadrini, 2010, "Financial Globalization, Financial Crises and Contagion," *Journal of Monetary Economics*, <u>http://www.sas.upenn.edu/~egme/pp/JME2010.pdf</u>.

### Additional References & Suggested Readings

### a) Workhorse Models & Solution Methods

Aguiar M. and G. Gopinath, 2007, "Emerging Market Business Cycles: The Cycle Is the Trend," *Journal of Political Economy* 115(1): 69-102.

Blanchard, O. and Fischer S. Lectures on Macroeconomics, section 2.4 and Ch.2 appendix C

Boz, E., C. Daude, and C. B. Durdu, 2011, "Emerging Market Business Cycles Revisited: Learning about the Trend," *Journal of Monetary Economics*, vol. 58(6), pages 616-631

Cole, H.L. and Obstfeld, M., "Commodity Trade and International Risksharing," *J. of Mon. Economics*, 1991. Fernandez, A., S. Schmitt-Grohe and M. Uribe, 2017, "World shocks, world prices, and business cycles: An empirical investigation," *J. of International Econ*, vol. 108, pages S2-S14.

Garcia-Cicco, J., R. Pancrazi, and M. Uribe, 2010, "Real Business Cycles in Emerging Countries?" *American Economic Review*, 100(5): 2510-31.

Mendoza, E. "Real Business Cycles in a Small Open Economy," *American Economic Review*, 1991, <u>https://www.sas.upenn.edu/~egme/pp/mendoza1991.pdf</u>

Mendoza, E., G. "The Robustness of Macroeconomic Indicators of Capital Mobility," in *Capital Mobility*, L. Leiderman and A. Razin eds., Cambridge Univ. Press., 1994. <u>http://www.sas.upenn.edu/~egme/pp/sapir.pdf</u>

Nicolini, J. P., C. Hevia and J. Ayres, 2015, "Real Exchange Rates and Commodity Prices," mimeo, Federal Reserve Bank of Minneapolis.

Neumeyer, P.A. and F. Perri, "Business Cycles in Emerging Economies: The Role of Interest Rates," *JME*, 2005. Schmitt-Grohe, S., and M. Uribe (2003), "Closing small open economies," *J. of Int. Econ*, 61, 163-185. Schmitt-Grohe, S., and M. Uribe (2017), "How Important are Terms of Trade Shocks," *Int. Ec. Rev.* Uribe, M. and Z. V. Yue, "Country Spreads and Emerging Countries: Who Drives Whom?," *JIE*, 2006.

# b) Financial Crises, Sudden Stops and Macroprudential Policy

Bengui, J., E. Mendoza and V. Quadrini, 2012, "Capital Mobility and International Sharing of Cyclical Risk," *Journal of Monetary Economics*, <u>http://www.sas.upenn.edu/~egme/wp/w18372.pdf</u>

Ates, S.T. and F. Saffie, 2014, "Fewer but Better: Sudden Stops, Firm Entry and Financial Selection," available at <u>https://economics.sas.upenn.edu/sites/economics.sas.upenn.edu/files/14-043.pdf</u>

Adrian, T. and H. S. Shin, 2013, "Procyclical Leverage and Value-at-Risk," *Review of Financial Studies*. Arellano, C., Y. Bai and P. Kehoe, 2019, "Financial Markets and Fluctuations in Volatility," *Journal of Pol. Ec.* Benigno, G., H. Chen, C. Otrok, A. Rebucci & E. Young, 2016, "Optimal Capital Controls or Exchange Rate Policies? A Pecuniary Externality Perspective," *Journal of Monetary Economics*, v. 84, 147-165 Bernanke, B., M. Gertler, and S. Gilchrist, 1999, "The financial accelerator in a quantitative business cycle

model," in Handbook of Macroeconomics, ed. by J. Taylor, and M. Woodford.

Bianchi, J. "Overborrowing and Systemic Externalities in the Business Cycle" *American Economic Review*, 2011. Bianchi, J., E. Boz and E.G. Mendoza, 2012, "Macroprudential Policy in a Fisherian Model of Financial Innovation," *IMF Economic Review*, <u>http://www.sas.upenn.edu/~egme/pp/imfer20129a.pdf</u>

Borio, C., E. Kharroubi, C. Upper and F. Zampolli, 2016, "Labour reallocation and productivity dynamics: financial causes, real consequences," BIS Working Paper 534, <u>http://www.bis.org/publ/work534.htm</u>

Calvo, G.A., "Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops," *Journal of Applied Economics*, v. 1, pp. 35-54, 1998

Calvo, G. and Mendoza, E.G. "Capital Markets Crises and Economic Collapse in Emerging Markets: An Informational Frictions Approach," *American Economic Review*, May 2000.

Calvo, G. and E.G. Mendoza "Rational Contagion and the Globalization of Securities Markets," *Journal of International Economics*, June 2000, <u>https://www.sas.upenn.edu/~egme/pp/JIE\_last.pdf</u>

Calvo, G., Izquierdo, A. and L. Mejia, "On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects," mimeo, Inter-American Development Bank, 2004.

Carrillo, J., E.G. Mendoza, V. Nuguer, and J. Roldan-Peña, 2021, "Tight Money-Tight Credit: Coordination Failure in the Conduct of Monetary and Financial Policies," *American Economic Journal: Macroeconomics*, also available as NBER WP no. w23151 (<u>https://www.sas.upenn.edu/~egme/wp/w23151.pdf</u>).

Choi, W. G. and D. Cook, "Liability Dollarization and the Bank Balance Sheet Channel," *JIE*, 2003. Cook, D. and M. Devereux, "Accounting for the East Asian Crisis: A Quantitative Model of Capital Outflows in Small Open Economies," *JIE* 2006.

Durdu, C.B. and E.G. Mendoza, 2006, "Are Asset Price Guarantees Useful for Preventing Sudden Stops?: A Quantitative Investigation of the Globalization Hazard Moral Hazard Tradeoff," *Journal of International Economics*. Available at <u>http://www.sas.upenn.edu/~egme/pp/JIE06Durdu.pdf</u>

Durdu, C.B., Mendoza, E. and Terrones, M., "Precautionary Demand for Foreign Assets in Sudden Stop Economies: An Assessment of the New Mercantilism," *JDE* 2009, available at

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Farhi, E. and I. Werning, 2016, "A Theory of Macroprudential Policy in the Presence of Nominal Rigidities," *Econometrica*.

Galati, G. and R. Moesnner, 2018, "What do we know about the effects of macroprudential policy?, *Economica*, vol. 85, issue 340, 735-770

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Mendoza, E.G., 2016, "Macroprudential Policy: Promise and Challenges," NBER WP no. 22868, http://www.nber.org/papers/w22868

Mendoza, E.G. "Real Exchange Rate Volatility and the Price of Nontradables in Sudden-Stop Prone Economies," *Economia*, vol. 6, no. 1, Fall 2005., <u>https://www.sas.upenn.edu/~egme/pp/EconomiaFall05.pdf</u>

Mendoza, E.G. "The Benefits of Dollarization when Stabilization Policy Lacks Credibility and Financial Markets are Imperfect," *Journal of Money, Credit, and Banking,* 2001.

https://www.sas.upenn.edu/~egme/pp/draft\_jmcb.pdf

Mendoza, E.G. "Credit, Prices, and Crashes: Business Cycles with a Sudden Stop," in *Preventing Currency Crises in Emerging Markets*, ed. by S. Edwards and J. Frankel, Univ. of Chicago Press, 2002, also NBER WP no. w8338, 2001., <u>https://www.sas.upenn.edu/~egme/pp/sudden\_stops\_draft.pdf</u>

Mendoza, E.G., and M. Terrones, 2012, "An Anatomy of Credit Booms and their Demise," NBER Working Paper no. 18379, available at <u>http://www.sas.upenn.edu/~egme/wp/w18379.pdf</u>.

Mendoza, E.G. and Uribe, M. "Devaluation Risk and the Business Cycle Implications of Exchange Rate Management," *Journal of Mon. Economics*, 2001. Available at <u>http://www.sas.upenn.edu/~egme/pp/CRCS00.pdf</u> Mendoza, E. and K. Smith 2014, "Financial Globalization, Financial Crises, & the External Portfolio Structure of Emerging Markets," *Scandinavian Journal of Economics*, <u>http://www.sas.upenn.edu/~egme/wp/w19072.pdf</u> Miranda-Agrippino S, & H. Rey, (2015) "World Asset Markets & the Global Fin. Cycle," NBER WP no. 21722 Stein, Jeremy, "Monetary Policy as Financial-Stability Regulation," *Quarterly Journal of Ec.* 127, no. 1: 57-95. Schimtt-Grohe, S. and M. Uribe, "Currency Pegs, Downward Nominal Wage Rigidity, Unemployment, and Macro Prudential Policy", http://www.columbia.edu/~mu2166/dnwr\_pegs\_iu/paper.pdf

# c) Fiscal Policy, Public Debt Sustainability & Sovereign Default

Aguiar, M. and G. Gopinath, "Defaultable Debt and Current Account Sustainability," *JIE*, 2006. Aguiar, M., S. Chatterjee, H.L. Cole, and Z. R. Stangebye, 2016, "Quantitative Models of Sovereign Debt Crises," *Handbook of Macroeoconomics*.

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Cuadra, G. and H. Sapriza, 2008, "Sovereign default, interest rates and political uncertainty in emerging markets" *JIE*, vol. 76, issue 1, 78-88

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Farhi, E. and I. Werning, 2017, "Fiscal Unions," American Economic Review 107 (12): 3788-3834.

Hatchondo, J.C., L. Martinez and C. Sosa Padilla, 2016, "Debt dilution and sovereign default risk," *Journal of Political Economy*. vol 124, no. 5: 1383-1422.

Lorenzoni, G. and I. Werning, 2014, "Slow Moving Debt Crises," mimeo, Dept. of Economics, MIT.

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Mendoza, E. and J. Ostry, "International Evidence on Fiscal Solvency: Is Fiscal Policy 'Responsible'", *Journal of Mon. Econ*, 2008. At: <u>http://www.sas.upenn.edu/~egme/wp/MendozaOstryJME.pdf</u>

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# d) International Macroeconomics with Heterogeneous Agents

Asriyan, V., L. Laeven, A. Martin, A. Van der Ghote and V. Vanasco, 2021, "Falling Interest Rates and Credit Misallocation: Lessons from General Equilibrium," mimeo, CREI.

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Sandri, D. 2014, "Growth and Capital Flows with Risky Entrepreneurship," Am. Ec. Journal: Macroeconomics.